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EXAMINER	
HUTCHINSON, SHAWN R	
ART UNIT	PAPER NUMBER
4174	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,123	GOHL ET AL.	
	Examiner	Art Unit	
	Shawn R. Hutchinson	4174	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *8-19,26 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 November 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *15 June 2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of "A permselective asymmetric hollow fiber membrane" in the reply filed on 02 November 2007 is acknowledged.

Claims 8-19, 26, & 27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected "A process for preparing a membrane," there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02 November 2007. The requirement is deemed proper and is therefore made FINAL.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings Objections

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 4-layer structure must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. It is not clear from Figure 4 what areas of the fiber are to be considered the

layers. In other words, it appears as if the "layers" lack discrete striated boundaries as is implied by its use.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing-sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the Examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

A registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 2, 5-7, 20, & 21-25 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-6, 8-9, 14-16, & 30 of copending Application No. 10/539409 to Buck et al. {Buck} in view of Klein et al. {Klein} (*JMS*). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed inventions are substantially identical. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Buck claims a permselective asymmetric hollow fibre membrane with hydrophobic and hydrophilic polymer(s) allowing passage of molecules with weight up to 45-kDa and exclusion of those with about 200-kDa (Claims 1 & 2) corresponding with [[Claim 1]]. Pore diameters range from 0.5- to 3-μm and 10k to 150k-pores·mm^{-2} (Claim 15) corresponding with [[Claims 1 & 2]] and 20k to 100k-pores·mm^{-2} (Claim 30 & 31) corresponding with [[Claims 24 & 25]].

The hydrophobic and hydrophilic polymers are in ratio of 50- to 80-% to 20-50-%, respectively (Claim 2) corresponding with [[Claim 5]]. The lists of hydrophobic and

hydrophilic polymers are substantially identical (Claims 5 & 6) corresponding with [[Claims 6 & 7]].

The fibers can be used in dialysis of blood, or hemodialysis and hemofiltration (Claims 26-28) corresponding with [[Claims 20-21]].

The process of preparing the membranes involve the steps of dissolving, extruding the polymer solution, extruding the core fluid, and washing the fiber (Claims 15 & 16) corresponding with [[Claims 22 & 23]].

At the time of the invention, it would have been obvious to one of ordinary skill in the art to vary the dimensions and specification of the permselective asymmetric hollow fibre membrane with hydrophobic and hydrophilic polymer(s) {Buck}. The motivation would have been to engineer the properties of the fiber for hemodialysis [0005]. Regarding the weight of filtered molecules, the structure and properties of the claimed and provisional applications are substantially identical for reasons stated above. Thus, the filtered weights and diffusivity would have been substantially identical or well within the bounds of one of ordinary skill in the art to optimize based on the molecular content of blood ({Klein} Fig. 15).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the U.S.

6. Claims 1-7 & 21-25 rejected under 35 U.S.C. 102(b) as being anticipated by Aptel et al {Aptel} (US 4882223 A) with incorporation by reference Michaels (US 3615024 A).

Regarding Claims 1, 2, 24, & 25, Aptel teaches non-symmetric (asymmetric) hydrophobic/ hydrophilic hollow fibers with a dense skin layer ({Aptel} C1:L11-31 | C2:L18-C3:L24 | Fig. 1). Michaels teaches that the skin layer has a thickness of 0.1- to 5.0-μm and pore diameters of 1.0- to 1000-millimicrons or 0.001- to 1.0-μm ({Michaels} C3:L21-50). The plurality of pores in the skin layer ({Michaels} Claim 1) can easily be used to extrapolate the overlapping density of pores given the pore size and water flux of the hollow fiber membranes as reported using the diameter of the pores and volume of water fluxed ({Michaels} Tables 15 & 16). Even though polar and generally hydrophilic polymers and their copolymers are preferred, "hydrophobic" polymers are also included such as polyamide, polysulphone, and polycarbonate ({Michaels} C7:L48 | Table 1 | Claim 3).

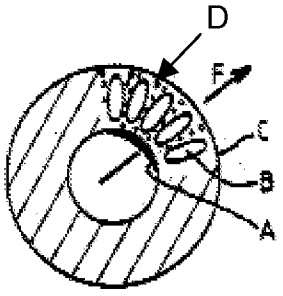


FIG.1

Regarding Claim 2, the barrier layers are equivalent to the skin layers and the "integal [sic]" or integral layer is a continuous polymer phase having microporous (D)

and macroporous (B) properties ({Michaels} Claims 1 & 6). Aptel explicitly teaches that the pore dimensions of the micropores are less than 2-µm and macropores greater than 2-µm (C2:L17-30 | Claim 1). The shape of the macropores substantially depicts the fingers ({Aptel} Claim 7) and the micropores the sponge structure of the instant invention. Thus the invention is substantially identical to the claimed invention. Proof otherwise is the burden of Applicant; see *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

Regarding Claim 3, in Examples 15 & 16, the rates of flux vary by pressure and overlap in effective range from 28- to 840-gal·(ft-^{2}·day)$^{-1}$ ({Michaels} C14:L50-C15:L34).

Regarding Claim 4, the thickness of the integral layer is 0.1- to 5.0-microns or -µm ({Michaels} Claim 2). The width of the integral layers including sponge and finger structures is clearly decipherable ({Aptel} Figs. 8-11) using the provided scales and overlaps the claimed thicknesses ({Aptel} C3:L46-61).

Regarding Claims 5-7, polyamides, polycarbonates, polysulfides, cellulose, cellulosic esters, polyvinylpyrrolidones, and polyethyleneglycols are taught as suitable polymers ({Aptel} C2:L45-58 | C3:L5-19). Example 2 uses 28% of hydrophobic vinylidene polyfluoride and 18-% “Triton X 100” having a C.A.S. Registry Number of 9002-93-1, which is a hydrophilic polyethylene glycol with an oxide group. Example 3 uses a polysulphone and polyvinylpyrrolidone in the amount of 18-% each in 64-% of N-N-dimethylformamide. The ratio of polymers in Example 2 anticipates Claim 5.

Regarding Claim 21, the asymmetric fibers can be used in dialysis by Example 5 ({Aptel} C6:L68).

Regarding Claims 22 & 23, "[e]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." The process further appears on its face to lack a novel or substantive contribution to the structure or properties of the product that would otherwise render it patentably distinct. The invention as claimed is thus unpatentable; see *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aptel et al {Aptel} (US 4882223 A) with incorporation by reference Michaels (US 3615024 A) in further view of Kawata et al. {Kawata} (US 5340480 A).

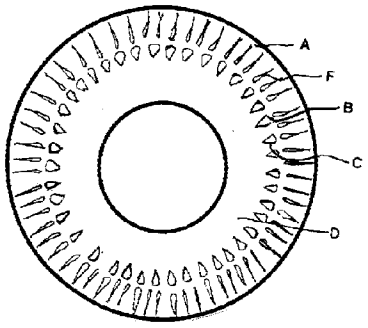
As discussed above, Aptel teaches non-symmetric (asymmetric) hydrophobic/ hydrophilic hollow fibers with a dense skin layer ({Aptel} C1:L11-31 | C2:L18-C3:L24 | Fig. 1). Aptel or Michaels lacks teaching that the membrane used for ultra-filtration, micro-filtration, dialysis, reverse osmosis can be used for hemodialysis or hemofiltration

Kawata teaches hydrophobic/hydrophilic polysulfone-based with polyglycol and poly vinylpyrrolidone hollow fiber membranes for hemodialysis, hemofiltration, and hemoconcentration (C10:L31-40) or dialysis (C6:L39-62) because the chemistry is suitable for blood treatment (C10:L41-53).

At the time of the invention, it would have been obvious to use non-symmetric (asymmetric) hydrophobic/ hydrophilic hollow fibers with a dense skin layer with substantially identical layered sponge and finger microstructure {Aptel | Michaels} with the hydrophobic/ hydrophilic hollow fiber filters for blood filtration and dialysis {Kawata}. The motivation would have been to use similar fibers and polymers that are known to have chemistries suitable for blood treatment ({Kawata} C10:L41-53). Thus, it would have been obvious to combine Aptel and Michaels with Kawata to obtain the claimed invention.

10. Claims 1, 2, 4-7, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. {Kim} (KR 2001-061733 A) in view of Kawata et al. {Kawata} (US 5340480 A), Wang et al. {Wang} (US 6045899 A), or Zepf (US 5188734 A).

Kim teaches a four-layered hollow fiber membrane comprising hydrophobic polysulphone and hydrophilics such as poly(vinylpyrrolidone) and poly(ethylene glycol) (Claim 1 | Embodiments 1, 2, & Comparative Example) corresponding with Applicant's [[Claim 1]]. Extrusion of the "sponge structure" fiber results in an equivalent four-layered construction (A-D). The outer surface (A) is a porous boundary layer where the fiber structures are based or grounded, an intermediate layer (C) for filtering, and an inner active (separation) surface layer (D) [20] corresponding with [[Claim 2]]. The thickness of the outer layer (A) is taught as a balance between permeability and failure [22]. Thus, the relative thickness is a result-effective variable and unpatentable; see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Explicitly, thicknesses of the layers are taught to be 10- to 70-μm for both the inner (D) and outer layers (A&B) and 50- to 200-μm for the intermediate (C) layer (Claim 3) corresponding with [[Claim 4]].



The ratio of hydrophobic to hydrophilic polymers clearly overlaps that of Applicant's by way of the relative presence in the dope as well as what is reported in the

examples ([18] | Table 1), which is unpatentable as claimed [[Claim 5]]; see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). The hydrophobic polymer is taught to be polysulphone and the hydrophilic polymers are taught to be polyvinylpyrrolidone and poly(ethylene glycol) [41], corresponding with [[Claim 6]].

Regarding Claims 1, 2, 24, & 25, Kim is silent regarding pore size and density.

Kawata teaches polysulfone hollow fiber membranes for blood filtration and teaches background materials for selective permeable membranes to be polyolefin-based, polysulfone-based, and polyamide-based (C1:L23-34). The skins of the membranes are taught to be between 0.2- to 1.0-μm thick (C9:L18-30), an overall thickness of approximately 80-μm for the inner core, pore diameter on average 1- to 3-μm in the core and 0.1- to 0.3-μm on the outer surface (Examples 2-3). Kawata further argues that dialyzability performance is a function of the molecular weight of the filtered molecules and distribution of vinylpyrrolidone-based polymer throughout the filter due to its swelling and obstruction of filtration channels (C12:L26-56).

Wang teaches hydrophobic/ hydrophilic filtration membranes with a sulfone-based polymer (C5:L20-44). Skin pores have an average diameter of 0.1- to 10-μm with sponge pore sizes from about 5- to 100 times in diameter of the skin pore. Pore density in the skin is about 15 per 1000-μm^2 and approximately 150-μm in total thickness (C5:L20-C6:L44).

Zepf teaches that the flow rate is controlled by pore diameter and density or population of skin pores including such membrane designs having graded pore density (C2:30-34 | C4:L42-50). Thus, layer thickness, pore size, and pore density are result

effective variables controlling the permeability or flow rate and is unpatentable as claimed; see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding Claims 22 & 23, "[e]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." The process further appears on its face to lack a novel or substantive contribution to the structure or properties of the product that would otherwise render it patentably distinct. The invention as claimed is thus unpatentable; see *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to follow the teaching for pore size and density for filtration and blood filtration asymmetric hydrophobic/ hydrophilic membranes and hollow fiber filters {Kawata | Wang | Zepf} for the with the four-layer filtration hollow fibers {Kim}. The motivation would have been to control the flow rate is controlled by pore diameter and density or population of skin pores including such membrane designs having graded pore density ({Zepf} C2:30-34 | C4:L42-50) for particular molecule size to optimize dialyzability performance ({Kawata} C12:L26-56). Thus, it would have been obvious to combine Kim with Kawata, Wang, or Zepf to obtain the claimed invention.

11. Claims 3, 20, & 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. {Kim} (KR 2001-061733 A) as applied to Claims 1 & 2 in view of Kawata et al. {Kawata} (US 5340480 A).

As discussed above, Kim teaches a four-layered hollow fiber membrane comprising hydrophobic polysulphone and hydrophilics such as poly(vinylpyrrolidone) and poly(ethylene glycol) for filtration (Claim 1 | Embodiments 1, 2, & Comparative Example). Diffusive permeability is reported as fraction performance or selectivity is measured relative to the transmission of 1.0-kg·cm^{-2} of water with the transmission of a higher molecular weight (45-kDa) protein ovalbumin ([38] | Table 2). Kim is silent regarding broader uses of filtration fibers and permeability rates for low molecular weight molecules.

Kawata teaches hydrophobic/hydrophilic polysulfone-based hollow fiber membranes for dialysis (C6:L39-62) or hemodialysis, hemofiltration, and hemoconcentration (C10:L31-40). The polymer combinations are particularly suited for blood filtration because they prevent dehydration and reuse of the filters (C3:L26-43). Kawata further argues that dialyzability performance is a function of the molecular weight of the filtered molecules and distribution of vinylpyrrolidone-based polymer throughout the filter due to its swelling and obstruction of filtration channels (C12:L26-56). Urea has a molecular weight of 60-Da while ovalbumin is approximately 43-kDa, so the ability to permeability is a function of the size of the molecule and the chemical distribution and microstructure of the polymers in the membrane and is thus a result-

effective variable and unpatentable as claimed; see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

At the time of the invention, it would have been obvious to use hydrophobic/ hydrophilic hollow fiber filters for blood filtration and dialysis {Kawata} with the four-layer filtration hollow fibers {Kim}. The motivation would have been to use the same polymer combinations for additional applications such as blood filtration because they prevent dehydration and reuse of the filters (C3:L26-43). Thus, it would have been obvious to combine Kim with Kawata to obtain the claimed invention.

12. Claims 6 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over {Kim} (KR 2001-061733 A) as applied to Claim 2 in view of Kawata et al. {Kawata} (US 5340480 A), Ohyabu et al. {Ohyabu} (US 4664669 A), Aoyagi (US 5075003 A), Wagener et al. {Wagener} (US 5505851 A), or Ji et al. {Ji} (US 6890435 B2).

As discussed above, Kim teaches a four-layered hollow fiber membrane comprising hydrophobic polysulphone and hydrophilics such as poly(vinylpyrrolidone) and poly(ethylene glycol) (Claim 1 | Embodiments 1, 2, & Comparative Example). Kim is silent about functionally equivalent polymers.

Regarding the claimed hydrophobic polymers, Kawata teaches polysulfone hollow fiber membranes for blood filtration and teaches background materials for selective permeable membranes to be polyolefin-based, polysulfone-based, and polyamide-based (C1:L23-34). For semipermeable membranes of sulfonated polymers including polyethersulphone and copolymers, Wagener teaches polyaramides,

polyamides, and cellulosics and copolymers (C6:L56-C7:L16-29). For hydrophobic/hydrophilic blood-cleaning hollow fibers, Aoyagi teaches polyurethane, polyolefin, polypropylene, polyamide, and polysulfone polymer types (C3:L37-59).

Regarding the claimed hydrophilic polymers, Kawata teaches polysulfone hollow fiber membranes for blood filtration and teaches background materials for cellulose-based polymers. Ji teaches hollow fiber microfiltration membranes with a range of hydrophilic polymers including polyethylene oxide, polyamides, cellulosics, and polyfinylpyrrolidone (C5:L6-18).

Selecting known compounds for convention uses as claimed is clearly unpatentable; see *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 for additional information.

Conclusion

Any inquiry concerning this communication from the Examiner should be directed to Shawn R. Hutchinson whose telephone number is (571) 270-1546. The Examiner can normally be reached on 7 AM to 5 PM, M-F, Fridays off.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, D. Lawrence Tarazano can be reached on (571) 271-1515. The fax phone number for the organization where this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4174

Shawn R. Hutchinson
Examiner
Art Unit 4174